

WHAT IS CLAIMED IS:

1. A method for producing a spacer by drawing a base glass material, having a cross sectional shape with different dimensions in vertical and lateral  
5 directions, under heating to a drawing temperature, and then by cutting into a desired length, wherein:  
in a longitudinal direction of a cross section of the base glass material, a high-viscosity glass material is combined in at least both end portions of  
10 the low-viscosity glass material to obtain an entire cross-sectional shape having different dimensions in vertical and lateral directions, and said base glass material is drawn under heating at a drawing temperature at which both the low-viscosity glass  
15 material and the high-viscosity glass material have a viscosity within a range of  $10^5$  to  $10^{10}$  dPa·s and the high-viscosity glass material has a viscosity higher than that of the low-viscosity glass material.
- 20 2. A producing method according to claim 1, wherein surfaces in at least both end portions of the low-viscosity glass material, in the longitudinal direction of the cross section of the base glass material, are covered with the high-viscosity glass  
25 material.
3. A producing method according to claim 1,

wherein entire surfaces of the low-viscosity glass material, along the longitudinal direction of the cross section of the base glass material, are covered with the high-viscosity glass material.

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4. A producing method according to claim 1, wherein entire surfaces of the low-viscosity glass material, along the longitudinal direction and shorter direction of the cross section of the base glass material, are covered with the high-viscosity glass material.

5. A producing method according to claim 1, wherein glass materials of plural kinds are employed as the high-viscosity glass material.

6. A spacer having a cross sectional shape with different dimensions in vertical and lateral directions, wherein:

20 in a longitudinal direction of a cross section of the spacer, a high-viscosity glass material is integrated with at least both end portions of a low-viscosity glass material to obtain a cross-sectional shape having different dimensions in vertical and lateral directions, and the high-viscosity glass material shows a viscosity higher than that of the low-viscosity glass material in a state heated at a

temperature at which both the low-viscosity glass material and the high-viscosity glass material have a viscosity within a range of  $10^5$  to  $10^{10}$  dPa.s.

- 5           7. A spacer according to claim 6, wherein surfaces in at least both end portions of the low-viscosity glass material, in the longitudinal direction of the cross section of the spacer, are covered with the high-viscosity glass material.
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8. A spacer according to claim 6, wherein entire surfaces of the low-viscosity glass material, along the longitudinal direction of the cross section of the spacer, are covered with the high-viscosity
- 15 glass material.
9. A spacer according to claim 6, wherein entire surfaces of the low-viscosity glass material, along the longitudinal direction and shorter
- 20 direction of the cross section of the spacer, are covered with the high-viscosity glass material.
10. A spacer according to claim 6, wherein glass materials of plural kinds are employed as the
- 25 high-viscosity glass material.
11. A method for producing a spacer having

irregularities on a surface thereof by drawing a base glass material, having a cross sectional shape with different dimensions in vertical and lateral directions and having plural grooves on an external surface along a longitudinal direction of the cross section, under heating to a drawing temperature and then by cutting into a desired length, wherein:

the base glass material has a composite structure constituted of a low-viscosity glass material positioned in an internal layer of the base glass material and a high-viscosity glass material provided in an area including at least an external surface along the longitudinal direction of said cross section in a surface layer of the base glass material;

the high-viscosity glass material at least includes a member having plural grooves on an external surface side; and

the base glass material is drawn under heating to a drawing temperature at which both the low-viscosity glass material and the high-viscosity glass material have a viscosity within a range of  $10^5$  to  $10^{10}$  dPa-s and the high-viscosity glass material has a viscosity higher than that of the low-viscosity glass material.

12. A producing method according to claim 11,

wherein the low-viscosity glass material has a rectangular cross section and the high-viscosity glass material is applied on at least two surfaces in longer sides of the cross section of the low-  
5 viscosity glass material.

13. A producing method according to claim 12, wherein the high-viscosity glass material applied to the two surfaces in the longer sides of the cross  
10 section of the low-viscosity glass material include plural slat-shaped members, and said slat-shaped member has a width same as a pitch of said plural grooves and has two portions of different thicknesses corresponding to a peak portion and a bottom portion  
15 of said grooves.

14. A producing method according to claim 12, wherein the high-viscosity glass material, applied to the two surfaces at the longer sides of the cross  
20 section of the low-viscosity glass material, has a resistivity within a range of  $10^8$  to  $10^{10}$   $\Omega$ -cm.

15. A producing method according to claim 12, wherein the high-viscosity glass material is further  
25 applied to two surfaces in shorter sides of the cross section of the low-viscosity glass material.

16. A producing method according to claim 15,  
wherein the high-viscosity glass material applied to  
the two surfaces in the shorter sides of the cross  
section of the low-viscosity glass material, has a  
5 resistivity within a range of  $10^3$  to  $10^4$   $\Omega\cdot\text{cm}$ .

17. A spacer according to claim 16, wherein  
glass materials of plural kinds are employed as the  
high-viscosity glass material.  
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18. A spacer having irregularities on a surface  
thereof, comprising a composite structure integrated  
by a low-viscosity glass material positioned in an  
internal layer of the spacer and a high-viscosity  
15 glass material provided in at least an area having  
the irregularities in an external surface of the  
spacer;

wherein the high-viscosity glass material has a  
higher viscosity than that of the low-viscosity glass  
20 material in a heated state at a temperature at which  
both the low-viscosity glass material and the high-  
viscosity glass material have a viscosity within a  
range of  $10^5$  to  $10^{10}$  dPa·s.

25 19. A spacer according to claim 18, wherein the  
low-viscosity glass material has a rectangular cross  
section and the high-viscosity glass material is

integrated with at least two surfaces in longer sides of the cross section of the low-viscosity glass material.

5           20. A spacer according to claim 19, wherein the high-viscosity glass material, integrated with the two surfaces at the longer sides of the cross section of the low-viscosity glass material, has a resistivity within a range of  $10^8$  to  $10^{10}$   $\Omega\cdot\text{cm}$ .

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21. A spacer according to claim 19, wherein the high-viscosity glass material is further integrated with two surfaces in shorter sides of the cross section of the low-viscosity glass material.

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22. A spacer according to claim 21, wherein the high-viscosity glass material integrated with the two surfaces in the shorter sides of the cross section of the low-viscosity glass material, has a resistivity  
20 within a range of  $10^3$  to  $10^4$   $\Omega\cdot\text{cm}$ .

23. A spacer according to claim 18, wherein glass materials of plural kinds are employed as the high-viscosity glass material.

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